VIII COOMASSIE STAINING SOLUTION

8.1 INTRODUCTION

Coomassie Brilliant Blue R250 is a protein stain which is sensitive to the proteins in blood. Coomassie may be used to enhance blood impressions on porous or non-porous items. Blood impressions do not require heat fixing of the proteins although residue must be dry prior to application. No serological analysis can be conducted after the staining procedure.

8.2 PREPARATIONS

8.2.1 Coomassie Working Solution

1. Use deionized water.
2. Dissolve 0.44 grams of Coomassie brilliant blue R250 in 200 milliliters of methanol.
3. Add 200 milliliters of distilled water and 40 milliliters of glacial acetic acid.

8.2.2 Destaining Solution

1. Mix 200 milliliters of methanol with 200 milliliters of distilled water.
2. Add 40 milliliters of glacial acetic acid.

8.3 MINIMUM STANDARDS AND CONTROLS

Dye stains, such as Coomassie, work by discoloring impressions that are comprised of blood proteins. The Standards and Controls for the Coomassie consist of making a test impression on a non-porous, non-evidentiary item, by placing a small amount of blood on the item and allowing the blood to dry. Apply the Coomassie to the item and if a blue-black stain is observed, the Coomassie is working properly. Documentation of this process must be done in the form of a reagent log to include a batch number, established by month/day/year (060404). If additional batches are made on the same day, add an alpha character to the batch number (060404a, b, c, etc.). The batch number must be placed on the working container. Documentation of this process must be included in the examiner's notes by indicating a positive reaction by placing a (+) adjacent to the Coomassie process. This test must be performed for each case.

8.4 PROCEDURE OR ANALYSIS

All applications should be done in a fume hood.

8.4.1 Application by immersion

1. The article is immersed in the staining solution and removed after 2 minutes of agitation.

   -The working solution should be agitated before evidence application as well as during the immersion process.

2. It is then transferred to a destaining solution. After 1 minute, the solution is agitated until the background discoloration fades.
3. Faint reactions will require a return to the staining solution for longer exposure. Repeated staining and destaining can be performed until optimum intensity is reached.
4. All developed impressions should be photographically preserved.

8.4.2 Application by squirt bottle

1. Repeated flows of staining solution can be poured or applied by squirt bottle over large surfaces for about 5 minutes or until maximum contrast is observed. Agitate the working solution before application to the evidence.

2. Application of the staining solution is followed by applying the destaining solution.

3. All developed impressions must be photographically preserved.

8.5 INTERPRETATION OF RESULTS

The blood impressions will be intensified and additional detail not previously visible may be revealed. While stained impressions are relatively stable, photographic preservation of developed latent impressions is recommended. Dried impressions which lose contrast may be re-immersed in the destaining solution and photographed.

8.6 REFERENCES

1. British Home Office. "Chemical Development and Intensification of Sweat and Blood Marks, Etc."; May 1981.

2. Lee, Henry C.; Gaensslen, R. E., eds. *Advances in Fingerprint Technology*; Elsevier Science Publishers, NY, 1991.

3. Kent, Terry, ed. *Fingerprint Development Techniques*; Heanor Gate Publisher: Derbyshire, England, 1993.

4. McCarthy, Mary M.; David L. Grieve. "Preprocessing with Cyanoacrylate Ester Fuming for Fingerprint Impressions in Blood"; *Journal of Forensic Identification*, 1989, 39, 1, 23-32.

5. Norkus, P.; Kevin Noppinger. "New Reagent For The Enhancement Of Blood Prints"; *Identification News*, 1986, 26, 4, 5 & 15.

♦End